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EXAMINER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-20, 22-29, 32, 33, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beuten et al. U.S. Patent Application Publication 2002/0073400, in view of Murray U.S. Patent 4,942,550,

To the extent that Beuten does not expressly disclose the functional element of claim 18, specifically ***"so as to minimize a capacitive loading by the at least one second interface."***

Murray teaches to minimize capacitance in interconnections of circuit boards by minimizing interconnection lengths, for the benefit improved operating speeds **(Murray: column 2, line 40-51)**.

A person of ordinary skill in the art of motor vehicle control systems at the time of invention had an undergraduate level degree in electrical engineering or the equivalent from on the job experience commensurate with the time of invention. This person was knowledgeable in data transmission and understood the value of minimizing capacitive load.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine Beuten with Murray for the benefit of improved operating speeds. Applicant's claims are below with relevant citations.

18. (Currently Amended) A motor vehicle control unit, comprising:
a processor; a first interface for communicating with a functional unit of a motor vehicle; and at least one second interface combined with the processor in a sub-assembly **(Beuten: fig 1 and 2; feat 7, 14, 15; ¶02 and 37)** so as to minimize a capacitive loading by the at least one second interface **(Murray: column 2, line 49+)**

and a storage module, wherein the at least one second interface accesses
a code of the processor in the storage module for a writing purpose

(Beuten ¶0037, ¶0033; feature 4 and 5).

19. (Previously presented) The motor vehicle control unit as recited in Claim 18, further comprising: an engine control unit **(Beuten: ¶ 02, 28 and 33).**

20. (Currently Amended) The motor vehicle control unit as recited in Claim 18, ~~further comprising: a storage module,~~ wherein: the at least one second interface accesses the storage module without participation of the processor **(Beuten: ¶ 28, 35, and 37; fig 1 and 2, features 3, 6, and 7).**

22. The motor vehicle control unit as recited in Claim 18, wherein:
the at least one second interface performs a block transfer of data **(Beuten: ¶ 35 and 37).**

23. The motor vehicle control unit as recited in Claim 18, wherein:
the first interface is combined with the processor and the at least one
second interface in the sub-assembly **(Beuten: fig 2, features 1,7 and 14).**

24. The motor vehicle control unit as recited in Claim 18, wherein:
the sub-assembly includes a printed-circuit board **(Beuten: Obvious
embodiment of a control structure and Inherent to cited art).**

25. The motor vehicle control unit as recited in Claim 18, wherein:
the sub-assembly includes a semiconductor chip **(Beuten: Obvious
embodiment of a control structure and Inherent to cited art).**

26. (Currently Amended) The motor vehicle control unit as recited in claim
18, ~~further comprising:~~ wherein the storage module for storing operating
parameters of the processor, ~~wherein: the storage module~~ is able to be at
least one of written on and read out via the at least one second interface
(Beuten: fig 2; feature 6 and 7).

27. The motor vehicle control unit as recited in Claim 18, wherein:
the at least one second interface includes a serial interface **(Beuten: ¶ 33,**

35).

28. The motor vehicle control unit as recited in Claim 18, wherein:

the at least one second interface includes one of an Ethernet and a

FireWire interface **(Beuten: ¶ 33, 35).**

29. The motor vehicle control unit as recited in Claim 18, wherein:

the at least one second interface includes a USB interface **(Beuten: ¶ 33,**

35).

32. (Currently Amended) The motor vehicle control unit as recited in Claim

18, ~~further comprising: a storage module~~, wherein: the at least one second

interface is able to at least one of read and write to individual storage

locations of the storage module in an interrupt mode **(Beuten: ¶ 28, 35 and**

36).

33. The motor vehicle control unit as recited in claim 18, wherein: the at

least one second interface is connected to no functional unit of a motor

vehicle that is to be controlled **(Beuten: fig 2; feature 3, 6, 7, 8, and14).**

36. The motor vehicle control unit as recited in Claim 18, wherein the processor, the first interface and the at least one second interface are integrated on a shared semiconductor substrate **(Beuten: Obvious embodiment of a control structure and Inherent to cited art inherent).**

37. The motor vehicle control unit as recited in Claim 36, wherein the entire motor vehicle control unit is integrated on a semiconductor substrate **(Obvious embodiment of a control structure and Inherent to cited art).**

Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beuten and Murray as applied to claim 18 above, and further in view of Larky et al. U.S. Patent 6,311,294.

Beuten discloses a controller of a motor vehicle having multiple interfaces. To the extent that Beuten and Murray do not expressly disclose the transmission characteristics of applicant's claims, Larky teaches these elements as cited below in applicant's claims for efficient bulk data retrieval **(Larky: column 3, line 7) .**

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine Beuten and Murray with Larky for the benefit of efficient bulk data. Applicant's claims are below with relevant citations.

30. The motor vehicle control unit as recited in Claim 18, wherein:
the at least one second interface transmits data received from the processor via the first interface in an isochronous mode **(Larky: abstract)**.

31. The motor vehicle control unit as recited in Claim 18, wherein:
the at least one second interface transmits control parameters of the processor in bulk mode **(Larky: abstract, fig 4)**.

Claims 34, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beuten et al. U.S. Patent Application Publication 2002/0073400, in view of Murray U.S. Patent 4,942,550 and further in view of Larky et al. U.S. Patent 6,311,294.

Beuten discloses a controller of a motor vehicle having multiple interfaces. To the extent that Beuten does not expressly disclose the USB characteristics of applicant's claims, Larky teaches these elements as cited below in applicant's claims for efficient bulk data retrieval over a USB port **(Larky: column 3, line 7)**.

To the extent that Beuten does not expressly disclose the functional element of claim 34, specifically ***"so as to minimize a capacitive loading by the at least one second interface."***

Murray teaches to minimize capacitance in interconnections of circuit boards by minimizing interconnection lengths, for the benefit improved operating speeds **(Murray: column 2, line 40-51)**.

A person of ordinary skill in the art of motor vehicle control systems at the time of invention had an undergraduate level degree in electrical engineering or the equivalent from on the job experience commensurate

with the time of invention. This person was knowledgeable in data transmission and understood the value of minimizing capacitive load.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine Beuten with Murray and Larky for the benefit of improved operating speeds and efficient bulk data retrieval over a USB port. Applicant's claims are below with relevant citations.

34. (Currently Amended) A method for communicating between a motor vehicle control unit and an external host, comprising:

providing a first interface for communicating with a functional unit of the motor vehicle;

providing at least one second interface for communicating with the external host, the at least one second interface being combined with a processor in a sub-assembly so as to minimize a capacitive loading by the at least one second interface **(Beuten: fig 1 and 2; feat 7, 14, 15; ¶02 and 37; Murray: column 2, line 49+);**

providing a storage module, wherein the at least one second interface accesses a code of the processor in the storage module for a writing purpose (Beuten: ¶0037); and

causing the external host to stipulate different USB endpoints and transmission modes for different types of data to be exchanged between the external host and the motor vehicle control unit **(Larky: column 5, line 25 - 62; fig. 4).**

35. The method as recited in Claim 34, further comprising: causing the external host to poll the USB endpoints according to a priority sequence **(Larky: column 5, line 26- 63).**

Response to Arguments

Applicant has argued against the application of Beuten to the independent claims citing:

Claim 18, as presented, relates to a motor vehicle control unit, including a processor, a first interface, at least one second interface combined with the processor in a sub-assembly so as to minimize a capacitive loading by the at least one second interface, *and a storage module, wherein the at least one second interface accesses a code of the processor in the storage module_for a writing purpose.*

It is respectfully submitted that Beuten does not identically disclose (or even suggest) the feature of a storage module, in which the at least one second interface accesses a code of the processor in the storage module for a writing purpose, as provided for in the context of claim 18, as presented. Instead, Beuten merely indicates that the debug logic monitors the execution of a program, and selects an exception routine in the event of an exception, such as resetting and starting up the microcontroller again. (Beuten, ¶¶ 35, and 36). Nowhere does Beuten even indicate that the debug logic accesses a code of the processor in the storage module for a writing purpose. In fact, Beuten specifically states that its objective is to monitor the execution of a program while "affect[ing] neither the computing performance of the microprocessor nor the program memory." (Beuten, ¶ 17).

Therefore, Beuten does not identically disclose (or even suggest) the feature of a storage module, in which the at least one second interface accesses a code of the processor in the storage module for a writing purpose, as provided for in the context of claim 18, as presented.

Examiner maintains the validity of the Beuten
Reference over these arguments due to Beuten ¶0033
(storage element) and ¶0037, specifically from ¶0037:

"In the course of the exception routine, the type of fault and the storage address which was accessed before the occurrence of the fault are first stored in a fault memory (not shown). Then, micro controller 1 is reset and started up again and the monitored control program is initialized."

One having ordinary skill in the art would interpret this step as accessing the code of the processor (interrupting and examining the code) for a writing purpose (writing the fault information).

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J.PAGE HUFTY whose telephone number is (571)272-9966. The examiner can normally be reached on 9:00 am - 5:00pm, Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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